

CALIFORNIA ENERGY COMMISSION1516 NINTH STREET
SACRAMENTO, CA 95814-5512

**STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**

In the Matter of:)	
SALTON SEA UNIT 6 PROJECT)	Docket No. 02-AFC-2C
)	
CE OBSIDIAN ENERGY, LLC)	Order No. 05-0511-02
)	ORDER APPROVING a Petition to Add a
)	Binary-Cycle Turbine

CE Obsidian Energy, LLC, (CEOE) the owner/operators of the Salton Sea Unit 6 Project, has requested to modify the Salton Sea Unit 6 Geothermal Project by adding a binary-cycle turbine (Organic Rankine Cycle) to the existing steam turbine to capture dissipated energy. Other modifications include: increasing brine flow, adding one production well and one injection well, increasing the voltage of the transmission lines from 161 kV to 230 kV, extending the southern boundary by 328 feet (adding 20 acres to the project site), and increasing the size of the cooling tower. These and other minor modifications will increase generation from 185 to 215 megawatts, increase operational efficiencies, and enhance the project's economics.

The modifications were approved by the Imperial County Air Pollution Control District and a revised Determination of Compliance was issued on May 2, 2005.

STAFF RECOMMENDATION

The Energy Commission staff reviewed the petition and finds that it complies with the requirements of Title 20, Section 1769(a) of the California Code of Regulations and recommends approval of CEOE's petition to modify the Salton Sea Unit 6 Project and amend related Conditions of Certification.

COMMISSION FINDINGS

Based on staff's analysis, the Commission concludes that the proposed changes will not result in any significant impact to public health and safety, or the environment. The Commission finds that:

- The petition meets all the filing criteria of Title 20, section 1769(a) of the California Code of Regulations concerning post-certification project modifications.
- The modification will not change the findings in the Commission's Final Decision pursuant to Title 20, section 1755.

- The project will remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code section 25525.
- There will be no new or additional unmitigated significant environmental impacts associated with the proposed changes.
- The change will be beneficial to the project owner by improving generation efficiency and reducing per-kilowatt capital cost. Moreover, the change will be beneficial to the State of California by increasing power in an area of need (Southern California).
- There has been a substantial change in circumstances since the Commission certification justifying the change. During the review of construction contract proposals, the project owner identified changes in the project design that will augment generation, minimize construction costs, increase operational efficiencies and reduce the overall installed costs of the project.

CONCLUSION AND ORDER

The California Energy Commission hereby adopts Staff's recommendations and approves the following changes to the Salton Sea Unit 6 Project's Decision. New language is shown as **bold** and double underlined and deleted language is shown in ~~strikeout~~:

AQ-C11 The project owner shall provide through chemical monitoring and mass balance, or other means approved by the CPM, quarterly PM10 emission estimates for the SSU6 plant to demonstrate that the annual operational emissions are no more than ~~43.74~~ **16.3** tons/year on a rolling 12-month basis.

Verification: The project owner/operator shall provide the CPM with a proposed PM10 emission estimation methodology within 30 days of the start of commercial operations and shall provide the PM10 emissions estimates in the Quarterly Operations Report.

AQ-C14 The emissions of particulate matter less than 10 microns (PM10) from the Cooling Towers shall not exceed ~~2.94~~ **3.62** lbs/hr, and the drift eliminator shall be designed to limit drift to no more than 0.0005% of the circulating water flow.

Verification: The project owner shall provide copies of the cooling tower specifications and a vendor warranty of the drift efficiency to the CPM 60 days prior to cooling tower equipment delivery on-site.

AQ-C15 Compliance with the Cooling Towers PM10 emission limit shall be determined by circulating water sample analysis by independent **certified** laboratory within 60 days of commercial operation and quarterly thereafter.

Verification: The results and field data collected from cooling tower blowdown water samples analysis shall be submitted to the CPM as part of the Quarterly Operations Reports.

AQ-C16 The project owner shall confirm the ORC unit's isopentane average emissions estimate of 65 lbs/day based on actual final design specifications prior to installation of the ORC unit.

Verification: At least 60 days prior to installing the ORC unit, the project owner shall submit to the CPM vendor information regarding the specific system piping components (pumps, compressors, valves, flanges, etc.) and expected leak rates of each that confirms that an average leak rate of 65 lbs/day is attainable for the ORC unit.

AQ-C17 The project owner shall confirm on an annual basis that the Agricultural Burn Credit offsets obtained to meet the annual PM10 offset obligations would also provide VOC emission reductions that are equal to or greater than the annual estimated annual VOC emissions of 14.59 tons per year.

Verification: The project owner shall submit to the CPM, with the PM10 offset confirmation as required in Condition AQ-5, a calculation showing that the VOC emission reductions (as calculated using AP-42 Section 2.5) from the Agricultural Burn Cessation Credits used to offset the PM10 emissions would be sufficient to offset the project's annual VOC emissions.

District Conditions

SS Unit 6 Operations Specification and Permit Limitations

Compliance

AQ-4 The facility shall be constructed to operate in **substantial** compliance with the project description, and operating parameters of the Application For Determination Of Compliance and AFC Application dated July 2002, **and the amended application dated January 13, 2005.** except as may be modified by more stringent requirements of law or these conditions. Non-compliance with any condition(s) or emission specification of this Permit shall be considered a violation and subject to fines and or imprisonment. This Permit does not authorize the emissions of air contaminants in excess of those allowed by USEPA (Title 40 of the Code of Federal Regulation), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations). This permit cannot be considered permission to violate applicable existing laws, regulations, rules or statutes of other governmental agencies.

Verification: The project owner shall demonstrate compliance status in the Quarterly Operations Reports. **Compliance with AQ-4 is demonstrated through complying with AQ-1 through AQ-45.**

Emission Offsets

AQ-5 The project owner shall provide, before the construction, placement or testing of any emission source(s), offsets in tons listed per source or sources listed below in TABLE A: Offsets may be in the form of ERCs (Emission Reduction Credits) owned by certified ERC holders registered with the Imperial County Air Pollution ERC Agricultural or Stationary Bank. ERCs must be transacted and validated through the APCD. ~~New well drilling will not coincide with any other stationary emissions source for the entire project that will trigger offsets for other pollutants (other than NOx and PM10) greater than 137 lbs/day threshold.~~ The actual calculated emissions per source has been multiplied by the ratio 1.2 to 1 to comply with offsetting ratio requirements of Rule 207 for permanent stationary sources and 1 to 1 for temporary sources.

Table A

SOURCE(S)	OFFSET AMOUNT	OFFSET SOURCE
SSU6 (27.7 24.1 tpy) x 1.2 + temporary emissions (2.7 0.9 tpy) x 1	35.9 26.64 tons H ₂ S	Leathers LP 38 MWe Geothermal Power Plant (70 tpy H ₂ S <u>currently permitted at 99.8 tpy</u> uncontrolled) control with Biofilters, sparging (<u>repermitted to 71.4 tpy for unit 6 offsets</u>) or APCD approved system.
Well Flow Testing (temporary)	5.4 5.00 tons H ₂ S 32.3 29.8 tons PM10	H ₂ S from Leathers LP emission control. PM10 from ERC Stationary or Ag Bank.
SSU6 PM10 (permanent) (Mitigation Agreement July 24, 2003)	19.6 tons PM10	<u>PM10 from</u> ERC Stationary or Ag Bank.
Commissioning (temporary)	9.3 8.7 tons H ₂ S 6.25 5.63 tons PM10	H ₂ S from Leathers LP emission control. PM10 from ERC Stationary or Ag Bank.

On or Before the Operation of any emission source(s) listed above, the Project Owner shall have provided to the APCD, ERC certificate(s):

- **equaling to or exceeding 35.9 tons of H₂S from the Leathers geothermal power plant;**
- **equaling to or exceeding 19.6 tons of PM10 (permanent) ERCs from the Stationary Source and/or AG Burning Emission Credit Bank;**

- equaling to or exceeding 32.3 tons of PM10 (temporary) ERCs from the AG Burning Emission Credit Bank. The 32.3 tons of PM10 certificates may be provided and divided between each of the 17 wells before flow testing.
- equaling to or exceeding 6.25 tons of PM10 (temporary) ERCs from the AG Burning Emission Credit Bank before commissioning.

Verification: The project owner/operator must submit all H₂S ERC documentation to the District and the CPM prior to the start of construction. At least 30 days prior to project commissioning, the project owner shall identify and surrender the permanent and commissioning operations PM10 ERCs to the District in the amount shown above and shall provide the CPM with documentation of the ERC surrender. Until such time as the project owner has committed traditional stationary source ERCs to cover the entire permanent offset burden, the project owner shall annually provide to the CPM and the District the agricultural burn secession ERCs being used to offset the project's PM10 emissions prior to each calendar or operational year, as required by the District. The project owner shall identify and surrender the well flow testing PM10 ERCs to the District as required in the District permit.

AQ-6 ~~**Deleted.** install and have in operation a biofilter system, sparging system, or other APCD approved system at the Leathers LLC power plant capable of reducing 25.3 tons/yr (5.77 lbs/hr) of H₂S at all times.~~

~~**Verification:** The project owner/operator shall make arrangements for periodic inspections of the Leathers LLC power plant by representatives of the District, CARB, USEPA and CEC.~~

AQ-7 ~~**Deleted.** The total emissions rate of Leathers LLC H₂S shall not exceed 17.03 lbs/hr after the installation of the bio-filtrations system.~~

~~**Verification:** The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.~~

AQ-8 ~~**Deleted.** obtain PM10 offsets in the total amount of 19.6 tons PM10 per operating year. Offsets may be obtained through the APCD's Stationary Source and/or Agricultural Burning Emission Reduction Credits (ERCs) Bank list registered with the APCD. The Project owner shall have ERC Certificates in their possession totaling a minimum of 19.6 tons PM10 at all times during the operation of SS Unit 6. The Project owner shall surrender 19.6 tons PM10 ERC certificate(s) to the APCD prior to initial startup and annually thereafter.~~

~~**Verification:** At least 30 days prior to project commissioning, the project owner shall identify and surrender PM10 ERCs in the amount shown above. Until such time as the project owner has committed traditional stationary source ERCs to cover the entire offset burden, the project owner shall annually provide to the CPM and the District the~~

agricultural burn cessation ERCs being used to offset the project's PM10 emissions prior to each calendar or operational year, as required by the District.

AQ-9 ~~**Deleted.**~~ The Leather's LLC Permit to Operate # 1927E H2S emission rate shall be revised to reflect AQ-7 above.

~~**Verification:**~~ The project owner/operator shall maintain the latest version of the Leathers' LLC Permit to Operate on site for the duration of the SS Unit 6 operating lifetime, or until H2S offsets from a different source have been obtained, and shall be provided to District or CPM upon request.

Well Drilling

AQ-15 The project owner shall submit to the APCD ~~total~~ fuel usage and hours of ~~drilling~~ operation **no later than February 28th of each year for the preceding year.** records.

~~**Verification:**~~ The project owner/operator, shall submit fuel usage and hours of ~~drilling~~ operation to the District and CPM **no later than February 28th of each year for the preceding year.** 30 days after completion of well drilling.

Geothermal Power Plant Startups

AQ-16 Upon plant startups, the project owner shall:

- Notify APCD of the time duration of the anticipated startup;
- **Minimize to the extent feasible, excess emissions that occur during plant startups;** Vent high pressure steam to condenser as soon as technically feasible during startup;
- Notify APCD upon completion of startup.

~~**Verification:**~~ The project owner/operator shall notify the District and CPM seven (7) days prior to an anticipated startup, including both the estimated time and duration of the startup. The project owner/operator shall notify the District and CPM within three (3) days after completion of a startup. The project owner/operator shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-18 Non-condensable gases from the high pressure steam shall be directed to the hydrogen sulfide abatement and carbon absorption units at all times **during normal operations.**

~~**Verification:**~~ The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

Geothermal Power Plant Emissions Standards

AQ-17 Under normal operations, the project owner shall not exceed a plant wide total emission rate of the following:

Hydrogen Sulfide (NCG + CT Offgassing + <u>Basin Vent DWH</u>) <u>(0.67 lbs/hr + 5.6 lbs/hr + 0.02 lbs/hr)</u>	<u>6.348</u> lbs/hr
Hydrogen Sulfide (NCG + CT Offgassing + <u>DWH</u>)	4.81 lbs/hr over a 24 hour average
Hazardous Organics <u>and Inorganics</u> (NCG + CT Offgassing + <u>DWH</u>)	<u>0.220</u> 0.180 lbs/hr over a 24 hour average
NCG = exhaust from H2S abatement system CT Offgassing = cooling tower offgassing <u>from condensate water makeup</u> DWH = Dilution Water Heater Stacks <u>Basin Vent = Vents from High Pressure Condensate Chemical Treatment Unit</u>	

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

Geothermal Steam Venting Emissions Standards

AQ-19 Emissions of uncontrolled standard and low pressure noncondensable **gases** shall be calculated from most recent source tests.

Verification: The project owner/operator shall submit records of compliance as part of the Quarterly Operations Reports.

Monitoring

AQ-20 The project owner shall install and maintain in good working order an APCD approved continuous H2S in-stack monitor and flow gas meter at the H2S control system exhaust (**LOCAT**). The flow gas meter and in-stack monitor shall meet all specification, calibration, accuracy and quality assurance checks as set forth by the manufacturer. The monitor shall be equipped with a data logger capable of recording the continuous gas flow (SCFM) and H2S concentrations in PPBv/ PPMv and lbs/hr.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and CEC.

AQ-21 The project owner shall submit to the APCD ~~an approved performance test protocol. Testing shall not be conducted without prior APCD approval.~~ **no later than 30 days before the plant's commissioning an approved performance test protocol for Unit 6. The test protocol shall be capable of measuring Unit 6's total H2S and HAPs**

concentrations and emission rates. The plan shall include the measuring of total sulfides in the high pressure, standard and low pressure condensate and include a monthly sampling of benzene concentration from the carbon absorption unit and H₂S concentration from the LOCAT polishing unit exhaust. The monitoring plan shall include a method to monitor and measure the condensate H₂S abatement system. Monthly reporting of monitoring to the APCD shall commence 60 days after completion of the performance tests. Upon APCD approval, the sampling and measuring may be modified after an emissions baseline as been established for Unit 6.

Verification: Thirty (30) days prior to commissioning performance testing the owner/operator shall provide a written test and emissions calculation protocol for District and CPM review and approval. The approved protocol shall be in place when written notice for the initial performance tests is submitted. Written notice of the performance test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such performance tests shall be submitted to the District and CPM within sixty (60) forty five (45) days after testing. The performance source test shall verify the cooling tower H₂S emission partitioning fraction of 0.435 used in the project amendment emissions calculations. The approved monitoring protocol shall be in place prior to the end of the initial commissioning period. The monitoring data required in this condition shall be submitted to the APCD monthly and shall be provided to the CPM in the Quarterly Operations Reports.

AQ-22 Deleted. The project owner shall establish and submit an approved monitoring protocol and method(s) for monitoring and calculating cooling tower (offgassing) H₂S offgassing and benzene emissions from carbon absorption unit.

Verification: Thirty (30) days prior to initial commissioning the project owner shall submit a monitoring protocol and method(s) for monitoring and calculating cooling tower H₂S offgassing and benzene emissions from carbon absorption unit for District and CPM review and approval. The approved monitoring protocol shall be in place prior to the end of the initial commissioning period.

AQ-23 Unless waived by the APCO, The project owner shall perform a complete annual source testing every four years at (1) the LOCAT/Solid bed H₂S scavenger unit/Carbon adsorption exhaust for H₂S and Hazardous Air Pollutants (HAPs) organic and inorganic emissions Benzene emissions+ total speciated organic emissions+ total speciated metals; and (2) at the cooling tower cells exhaust for H₂S and ammonia or any other source that may emit non-condensable gases. HAPS are defined as HAPs that are relevant emissions from geothermal sources, benzene emissions+ total speciated organic emissions+ total speciated metals, and (3) the Dilution Water Heater (DWH) exhaust emissions for H₂S and

benzene emissions + total speciated organic emissions + total speciated metals and total PM10.

Verification: The required annual source test report shall be submitted to the District and CPM within 60 days of completion of the source test, as part of the Quarterly Operations Reports. Each annual subsequent source test report shall either include the results of the initial performance compliance test and supplemental source tests for the current period year or document the date and results of the last such tests. Each subsequent source test shall re-verify the cooling tower H2S emission partitioning fraction of 0.435 used in the project amendment emissions calculations.

Formatted: Font: Times New Roman, Bold, Double underline

Formatted: Font: Times New Roman, Strikethrough

AQ-26 Deleted. In-stack monitoring equipment shall be available for inspection by the APCD at all times.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

AQ-27 Deleted. The project owner shall measure and submit to the APCD monthly, in an approved format, the H2S concentration from the continuous H2S monitor and benzene concentrations from the carbon absorption units(s).

Verification: ~~_____ The data required in this condition shall be submitted to the APCD monthly and shall be provided to the CPM in the Quarterly Operations Reports.~~

AQ-28 Deleted. The project owner shall submit to the APCD the H2S concentration (ppmv) and H2S mass flow (lb/hr) measured at the non-condensable gas line before the abatement on a monthly basis. The project owner shall measure the efficiency of the cooling tower oxidizer boxes by measuring the flow rate and H2S concentration of the condensate inlet and the H2S outlet of the oxidizer boxes on a weekly basis and; the project owner shall measure the pH and temperature of the condensate at the inlet of the oxidizer boxes on a weekly basis. All sampling and analysis shall be performed on the same day. The project owner shall source test all cooling tower shrouds annually.

Verification: ~~_____ The data required in this condition shall be submitted to the APCD monthly and shall be provided to the CPM in the Quarterly Operations Reports.~~

Reporting Requirements

AQ-31 The project owner shall notify the APCD before plant startups.

Verification: The project owner/operator shall notify the District and the CPM at least seven (7) days prior to an anticipated startup, including both the estimated time and duration of the startup. For unanticipated shutdown events the project owner shall

notify the District and CPM, within 24 hours after the unanticipated shutdown, of the shutdown time and the actual or anticipated startup time.

AQ-33 The project owner shall submit source test results to the APCD no later than ~~60~~30 days after the initial performance test. All source tests after the performance test shall be submitted no later than February 28th of the subsequent year for the preceding year results.

Verification: Copies of the required source tests shall be submitted to the CPM and the District simultaneously by the schedule required in this condition.

AQ-34 The project owner shall submit to the APCD monthly, the benzene ~~mole~~ concentrations (**PPMv**), mass rate (lbs/hr) and total NCG gas flow rate (SCFM and lbs/hr) from the carbon absorption units no later than 15 days the subsequent month for the preceding month ~~and; the project owner shall submit to the APCD monthly, the continuous H2S concentration (PPMv) and Mass (lbs/hr) no later than 15 days the subsequent month for the preceding month.~~

Verification: The APCD required monthly concentration and flow data shall be provided to the CPM in the Quarterly Operations Reports.

AQ-35 The project owner shall submit annual fuel consumption and hours of operation of diesel standby equipment no later than February 28th of each year for the **preceding** ~~subsequent~~ year use.

Verification: The project owner/operator shall submit to the CPM the annual fuel consumption and hours of operation of diesel standby equipment in the Quarterly Operations Report for each fourth quarter.

Control and Monitoring Equipment Maintenance

AQ-37 The H2S and carbon absorption control, and drift eliminators and or other future control devices and monitoring equipments shall be maintained in good working **order** and operating at its maximum control efficiency level specified in accordance to the operating instructions.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, USEPA and CEC.

ORC Unit Emission Standards

AQ-39 **The project owner shall not allow more than 65 lbs/day of isopentane fugitive and Integrated Vapor Recovery Unit (IVRU) losses averaged over a calendar quarter from the ORC unit(s) under normal operating conditions.**

Verification: The project owner shall report in the Annual Compliance Report, the amount of isopentane purchased and estimate quarterly and quarterly average daily emissions based on mass balance calculations.

AQ-40 The ORC IVRU shall be in good working operating condition and operating without any leakages above normal specifications.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and CEC.

AQ-41 The project owner shall submit to the APCD and CEC an ORC inspection and maintenance plan; and shall include an isopentane monitoring leakages control program and leakage control plan. The plan shall include the manufacturer's ORC isopentane leakage specifications.

Verification: The project owner shall submit the ORC inspection and maintenance plan to the CPM for approval at least 60 days prior to operation of the ORC unit.

ORC Unit Reporting Requirements

AQ-42 The project owner shall report to the APCD and CEC CPM all breakdowns of the ORC units within 24 hours. The report shall include the reason(s) for the breakdown, antipated time until back online, and the amount of isopentane in pounds or gallons lost to atmosphere.

Verification: The project owner shall notify the APCD and the CEC CPM of an ORC breakdown within 24 hours of the ORC breakdown event. The project owner shall provide an estimate of the breakdown isopentane emissions within 7 days of the breakdown.

AQ-43 The project owner shall submit a report to the APCD and CEC CPM quarterly, that includes gallons of isopentane receivables for the quarter. The first reporting quarter shall have the set timing of the IVRU purging and number of purges that occurred for the quarter and the number of normal operating hours of the ORC and the number of hours not in operation. This report shall include the total amount of daily losses of isopentane under normal operation and the total number of losses in gallons due to breakdowns. The report shall be submitted to the APCD and CEC CPM no later than 30 days after the reporting quarter.

Verification: The APCD required quarterly isopentane receivables, emission data, and IVRU purge data shall be provided to the CEC CPM in the Quarterly Operations Reports.

Monitoring

AQ-44 The project owner shall measure and submit to the APCD quarterly, H2S brine concentrations prior to flash. The condition may be waived by the APCD after the first year of full operation.

Verification: The APCD required H2S brine concentrations data shall be provided to the CEC CPM in the Quarterly Operations Reports.

Organic Storage

AQ-45 The project owner shall comply with all vapor recovery and storage requirements of the District Rules.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and CEC.

Preventative Design Mitigation Features

BIO-12 The project owner shall modify the project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources such as the following.

1. Design, install, and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources and preferentially use previous pull sites or already disturbed locations;
2. Avoid wetland loss to the extent possible when placing facility features;
3. Design, install, and maintain facilities to prevent brine spills from endangering adjacent properties and waterways that contain sensitive habitat;
4. Schedule disposal of brine within brine ponds as expeditiously as possible;
5. Design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat;
6. Insulate production and injection well pipelines and flanges, **except during maintenance, NDE testing and repair activities;**
7. Prescribe a road sealant that is non-toxic to wildlife and plants and use only fresh water when adjacent to wetlands, rivers, or drainage canals;
8. Equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 74 dBA measured at a distance of 100 feet. Orient the silencer to maximize the noise reduction achieved in occupied Yuma clapper rail habitat to the north and northwest of the project site (i.e., Union Pond, McKendry Pond and Obsidian Butte).
9. Shield pile driving equipment to maximize noise reduction in the occupied Yuma clapper rail habitat to the north and northwest of the project site (i.e., Union Pond, McKendry Pond and Obsidian Butte).

10. Design, install, and maintain transmission lines and all electrical components to reduce the likelihood of electrocutions of large birds by following the Avian Power Line Interaction Committee (APLIC)'s *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996*;
11. Route the reject reverse osmosis water to the service water pond in lieu of the brine ponds, and
12. All mitigation measures and their implementation methods shall be included in the BRMIMP.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP.

Provide Habitat Compensation for Permanent Disturbance to Burrowing Owl Habitat

BIO-25 Foraging habitat which is permanently destroyed shall be replaced at 0.5:1 (mitigation:impacts) and managed for the protection of burrowing owls. Based on these ratios, the project owner must protect and manage ~~42~~52.65 acres of land for burrowing owls (~~40~~50 acres for the power plant site and 2.65 acres for the transmission line pads). The mitigation amount can be reduced if mitigation land for the same burrowing owls is also being provided under Condition of Certification BIO-19.

Verification: At least 15 days prior to site mobilization, the project owner shall provide the CPM, USFWS, Refuge, and CDFG with the burrowing owl survey results. If burrowing owls are present where a permanent facility will be placed or within 300 feet of a permanent facility, the project owner shall identify the amount of land they intend to protect 15 days prior to construction. The project owner shall fund the acquisition and long-term management of the compensation lands in a form acceptable to the CEC and CDFG (e.g., provide a letter of credit or establish an escrow account) 15 days prior to construction. The land protection proposal and management fund(s) shall be approved by the CPM and reviewed by CDFG. The project owner shall propose land for purchase or protection with a description of habitat types and propose a management and monitoring plan at least 90 days prior to commercial operation.

The project owner shall rectify any underfunded amounts in the acquisition and long-term management account(s) at least 60 days prior to commercial operation. At least 30 days prior to commercial operation, the project owner shall submit to the CPM two copies of the relevant legal paperwork that protects lands in perpetuity (e.g., a conservation easement as filed with the Imperial County Recorder), a final management and monitoring plan, and documents which discuss the types of habitat protected on the parcel. If a private mitigation bank is used, the project owner shall provide a letter to the CPM from the approved land management organization stating the amount of funds received, the amount of acres purchased and their location, and the amount of funds

dedicated to long term monitoring or management 60 days prior to commercial operation. If funds remain after performance of all habitat compensation obligations, the monies in the letter of credit or escrow account will be returned to the project owner with written approval of the CPM.

All mitigation measures and their implementation methods shall be included in the BRMIMP.

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List and a Master Specifications List. The schedule shall contain a list of proposed submittal packages of designs, calculations and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM when requested.

Verification: At least 60 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 1** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Steam Turbine (ST) Foundation and Connections	1
Steam Turbine Generator Foundation and Connections	1
Steam Condenser and Auxiliaries Foundation and Connections	1
Condensate (HP) Hotwell Pumps Foundation and Connections	2
Condensate (SP/LP) Hotwell Pumps Foundation and Connections	2
Condensate Storage Tank Foundation and Connections	1
Filter Press System Structure, Foundation and Connections	1
Thickener Foundation and Connections	2
Brine Production Wellpads	5
Brine Injection Wellpads	3
Purge Water Pumps (HP/SP/LP) Foundation and Connections	6
Main Transformer Foundation and Connections	1
Counterflow Cooling Tower Foundation and Connections – 10 cells each	2
Vertical Circulating Water Pumps Foundation and Connections	6
Blowdown Pumps Foundation and Connections	2
Cooling Tower Wetdown Pumps Foundation and Connections	2
Auxiliary Cooling Water Pumps Foundation and Connections	2
Benzene Abatement Structure, Foundation and Connections	1
<u>Chemical</u> H2S Abatement Structure, Foundation and Connections	4 2
NCG Removal System Structure, Foundation and Connections	1
Steam Vent Tank Foundation and Connections	4
Waste Water Collection System Foundation and Connections	1
Main Injection Pumps Foundation and Connections	4
Fire Protection System	1
Injection Booster Pump Foundation and Connections	4
Brine Pond Pumps Foundation and Connections	2
Generator Breakers Foundation and Connections	3
Transformer Breakers Foundation and Connections	3
Wellhead Separators Foundation and Connections	4
SP Crystallizers Foundation and Connections	4
LP Crystallizers Foundation and Connections	4
Atmospheric Flash Tanks Foundation and Connections	4
Dilution Water Heater/Pumps Foundation and Connections <u>Organic Rankine Cycle Foundation and Connections</u>	2 1
Scrubbers Foundation and Connections	6

Equipment/System	Quantity (Plant)
Demisters Foundation and Connections	6
Primary Clarifiers Foundation and Connections	21
Secondary Clarifiers Foundation and Connections	21
Vacuum System Foundation and Connections	4
Electric Motor Driven Fire Pump Foundation and Connections	1
Diesel Engine Fire Pump Foundation and Connections	1
Firewater Storage Tank Foundation and Connections	1
Compressed Air System Foundation and Connections	2
<u>Isopentane Tank Foundation and Connections</u>	<u>2</u>
<u>Tower Brom Tanks Foundation and Connections</u>	<u>1</u>
<u>Hydrogen Peroxide Tank Foundation and Connections</u>	<u>1</u>
HCL Tank Foundation and Connections	1
Emergency Relief Tanks Structure, Foundation and Connections	4
Seed Pumps Foundation and Connections	4
Control Room Structure, Foundation and Connections	1
RO/Potable Water Systems	2
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Substation/Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

In its Petition for Amendment, CEOE requests that Noise Condition of Certification **NOISE-6** be modified as shown below in underline/strikethrough. The requested changes would reduce restrictions on project noise during plant startup, shutdown and upset, and whenever steam relief valves operate. Such easing of restrictions can be expected to increase noise impacts on sensitive receptors. Energy Commission staff does not agree with these requested changes to **NOISE-6**, and does not recommend they be incorporated in the amendment.

HAZ-2 The project owner shall provide a Risk Management Plan (RMP) and Process Safety Management Plan (if required ~~by local regulatory body~~) to appropriate local administering agencies and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). A Hazardous Materials Business Plan (HMBP), which shall include

the proposed building chemical inventory as per the ~~UFC~~ **Uniform Fire Code** shall also be submitted to appropriate local administering agencies for review and to the CPM for review and approval prior to construction of hazardous materials storage and containment structures. The project owner shall include all recommendations of the local administering agencies and the CPM in the final HMBP. A copy of the final RMP, including all comments, shall be provided to appropriate local administering agencies and the CPM once it receives EPA approval.

Verification: At least 30 days prior to the commencement of construction of hazardous materials storage and containment structures, the project owner shall provide the final plans (RMP, **Process Safety Management Plan**, and HMBP) listed above to the CPM for approval.

LAND-6 The project owner shall mitigate for the loss of ~~96~~ **116** acres at a one to one ratio for the conversion of prime farmland as classified by the California Department of Conservation, to a non-agricultural use, for the construction of the power generation facility.

Verification: The project owner will provide a mitigation fee payment (payment to be determined) to an Imperial County agricultural land trust within 30 days following the construction start, as set forth in a prepared Farmlands Mitigation Agreement.

The project owner shall provide in the Monthly Compliance Reports a discussion of any land and/or easements purchased in the preceding month by the trust with the mitigation fee money provided, and the provisions to guarantee that the land managed by the trust will be farmed in perpetuity. This discussion must include the schedule for purchasing ~~96~~ **116** acres of prime farmland and/or easements within five years of start of construction as compensation for the ~~96~~ **116** acres of prime farmland to be converted by the SSU6.

LAND-8 The project owner shall comply with Imperial County's Minor Modification to the Conditional Use Permit requirements for the additional 20 acres not covered by the CUP that was approved by Imperial County.

Verification: At least 30 days prior to start of construction, the project owner shall submit to the CPM, written documentation, including evidence of review and approval by Imperial County that the project conforms to all requirements of the Minor Modification to the CUP.

TLSN-1 The project owner shall ensure that the proposed ~~161~~ **230** kV lines are designed and constructed according to the requirements of CPUC's GO-95, GO-52, the applicable sections of Title 8, California Code of Regulations section 2700 et seq., and IID's EMF reduction guidelines arising from CPUC Decision 93-11-013.

Verification: Thirty days before starting construction of the SSU6 transmission lines or related structures and facilities, the project owner shall submit to the Energy Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming compliance with this requirement.

- TSE-5** The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.
- (a) The SSU6 will be interconnected to IID grid via two ~~230+64kV~~ single circuits. One of the proposed interconnections would be a 16-mile single ~~230 kV~~ circuit connected to the ~~230 kV bus~~ ~~L-line~~ at ~~the~~ Bannisterr switching Substation. The new Bannister switching Substation ~~will utilize~~ ~~shall be a~~ ~~230 kV three-breaker~~ ring bus configuration. The other interconnection would be a 15-mile ~~230 kV~~ single circuit ~~464kV L-line~~ connected at the Midway substation.
 - (b) The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", Cal-ISO standards, National Electric Code (NEC) and related industry standards.
 - (c) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.
 - (d) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.
 - (e) The project conductors shall be sized to accommodate the full output from the project.
 - (f) Termination facilities shall comply with applicable ~~SGD&E~~ IID interconnection standards.

The project owner shall provide to the CPM:

The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,
Executed project owner and IID Facility Interconnection Agreement.

Verification: At least 60 days prior to the start of construction of transmission facilities (or a lesser number of days mutually agree to by the project owner and CBO, the project owner shall submit to the CBO for approval:

1. Design drawings, specifications and calculations conforming with CPUC General Order 95 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, applicable interconnection standards and related industry

standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"¹ and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", NEC, applicable interconnection standards, and related industry standards.
3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through f) above.
4. The final DFS, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, shall be provided concurrently to the CPM.

IT IS SO ORDERED.

Date: May 11, 2005

CONSERVATION

STATE OF CALIFORNIA
ENERGY RESOURCES

AND DEVELOPMENT COMMISSION

JOSEPH DESMOND
Chairman

¹ Worst case conditions for the foundations would include for instance, a dead-end or angle pole.